

## **Exhibit A**

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF SOUTH CAROLINA  
COLUMBIA DIVISION**

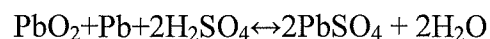
John Derrick,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	No. 3:10-CV-03295-CMC
	)	
Johnson Controls, Inc.,	)	
	)	
Defendant.	)	
	*	

**AFFIDAVIT OF JOSEPH E. LIEDHEGNER**

1. I, the undersigned, Joseph E. Liedhegner, am a Chemical Engineer and automotive battery expert. I am currently the Manager, Americas Benchmarking-Product Engineering for Johnson Controls Battery Group, Inc. My job responsibilities include conducting engineering based analysis of lead-acid automotive batteries in North America, Central America and South America for competitive intelligence. I conduct laboratory testing and field analysis of lead-acid batteries and their failure modes, including analysis of safety issues. I earned my Bachelor's and Master's degrees in Chemical Engineering from the University of South Carolina and my Doctorate degree in Chemical Engineering from Case Western Reserve University. I am an expert in the design and manufacture of lead acid batteries. I am a member of multiple committees and standards development groups for the leading battery industry group: Battery Council International ("BCI"). I am a member of the Battery Standards Committee of the Society of Automotive Engineers ("SAE") (Battery Standards Starter Battery Committee, Multiple Task Forces and Standards Developments).

2. I inspected the battery involved in the Derrick case on November 5, 2010. I have been involved in investigations and analysis of hundreds of lead-acid automotive

batteries through my laboratory and field work to determine the cause of explosions, alleged explosions or other failures. Lead-acid batteries like the Derrick battery are electrochemical devices that store chemical energy that can be released as electrical energy upon demand so that the battery can provide electrical energy for starting, lighting and ignition of motor vehicles. When two unlike electrode materials are immersed in an electrolyte solution, a voltage is developed and a battery is created. Electrical energy is produced by the chemical reaction between the two different electrode materials and the electrolyte. The Derrick battery uses lead dioxide (PbO<sub>2</sub>) positive plates and metallic sponge lead (Pb) negative plates that are immersed in an electrolyte solution with sulfuric acid (H<sub>2</sub>SO<sub>4</sub>). The following chemical reaction takes place:

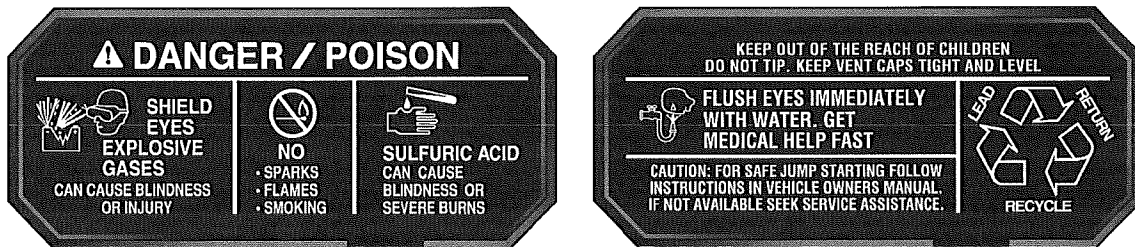


When the chemical reaction starts, electrical energy flows from the battery as soon as there is a circuit between the positive and negative terminals (whenever a load is connected to the battery). The electrical current flows as electrons through the outside circuit and as charged ions between the plates inside the battery.

3. The evidence of the Derrick battery shows that there was no internal manufacturing defect in the Derrick battery that might have caused the explosion. The Derrick battery is a top terminal lead-acid battery that was manufactured by Johnson Controls Battery Group, Inc. on June 26, 2003 and shipped in July 2003. Johnson Controls Battery Group, Inc. is a wholly-owned subsidiary of Johnson Controls, Inc.. Its design is state-of-the-art and includes BIC-2 design gang vent caps, envelope separators, expanded metal negative grids and a calcium alloy for the positive grids. The battery was a low water loss design with removable vent caps.

4. The subject battery was manufactured more than five years prior to the date of the alleged incident and exhibited signs of severe use and abuse. The explosion of the Derrick battery that is described in Mr. Derrick's Complaint was not of a kind that ordinarily would occur as a result of a product defect. Rather, alterations or misuse of the battery would ordinarily be the causes for an explosion of this kind.

5. Because all lead-acid automotive batteries generate explosive gases, they have an inherent potential to explode. Consequently, one must be careful to keep sparks and flames away from lead-acid batteries. For this reason, such batteries typically contain warnings. Likewise, jumper cables, battery chargers and vehicle owner's manuals also contain warnings about batteries' inherent potential to explode. At the time the subject battery left the control of the defendants, it displayed warnings contained on each of the two safety vent caps that stated:

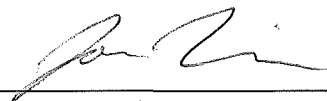


The warning messages recommended for use on batteries sold to or used by consumers were developed by the Product Safety Committee of Battery Council International and incorporates suggestions of the U.S. Consumer Product Safety Commission staff. The warnings were designed according to the labeling requirements of the code of Federal Regulation, PART 1500 (16 CFR 1500).

6. The subject battery was not destroyed as a result of the explosion. The internal components necessary to evaluate whether an internal defect existed remain present and fully capable of inspection by a qualified expert. No evidence of any deviation from the design intent was found in Mr. Derrick's battery. The battery was manufactured properly according to its specifications and the manufacturer's design intent.

7. My investigation and analysis of the battery also revealed that the Derrick battery was not in the same condition at the time of the explosion as it was at the time it left the control of the manufacturer. Alterations and signs of misuse included evidence that the negative terminal had been gouged and that the interface of the positive terminal to plate lug was altered. The electrolyte level in the battery had been lowered. Neither the design nor the manufacture of the Derrick battery was defective or a cause of the incident.

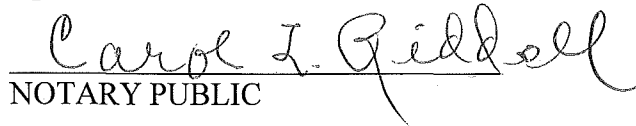
8. The opinions stated herein are made with a reasonable degree of engineering certainty. I am competent to testify to the matters stated in this affidavit. I solemnly affirm under the penalties of perjury and upon personal knowledge that the contents of this affidavit are true.



Joseph E. Liedhegner

SUBSCRIBED and SWORN to  
before me this 11<sup>th</sup> day of  
April, 2012.

State of Wisconsin  
County of Milwaukee



NOTARY PUBLIC

Commission expires 1/17/16.